AG
9863
.M52
A3

DEC 28 1922

STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

VOL. III. NOVEMBER, 1922 No. 11

ANOTHER REDUCTION IN THE TYPHOID DEATH RATE.

Slowly but very surely modern sanitation is conquering typhoid fever.

All indications point to a further reduction of the typhoid death rate in 1922. The records of two departments of the Metropolitan Life Insurance Company covering many million of lives, show this clearly. In the Industrial Department, with approximately fifteen million policy-holders, there were only 638 deaths during the first ten months of the year as compared with 717 for the same period of 1921. As there was a material increase in the number of persons insured, there has been a marked reduction in the death rate. These figures for the Company's Industrial policy-holders show what has happened in the *wage-earning* group of the population of American and Canadian cities. But there has also been a material reduction in the typhoid mortality of the Ordinary Department. These Ordinary policy-holders constitute a group of higher economic status than those insured in the Industrial Department. They live in both cities and rural communities. Together, these two groups constitute a typical cross section of the American and Canadian populations. The fact that typhoid mortality has declined in both classes, is a fairly sure indication that when the Census mortality figures for the year are published, another decline in the population at large will be shown.

How great has been the triumph of sanitary knowledge and sanitary accomplishment in the conquest of typhoid is shown by the reduced death rate during a period of twelve years among insured persons in the United States and Canada. Their typhoid death rate in 1911 was 22.8 per 100,000. Five years later it had declined to 13.0. By 1921, the typhoid death rate of this insured group had

declined to 6.7, and it is estimated that in 1922 the figure will not exceed 5.9. This represents a decline since 1915 of 54.3 per cent. and since 1911 of 74.1 per cent. These are noteworthy gains for so short a period as eleven or twelve years. What makes them the more significant for the future is the fact that the improvement is continuing even at the present time when a low level of mortality has been reached, and at a rate of decline which is itself noteworthy. If the 1922 figure of 5.9 be finally confirmed, there will have been a twelve per cent. reduction from the already low figure of 1921.

Probably the most important single element which has operated in bringing about the reduction in deaths from typhoid has been rural sanitation. The disease is, for the most part, rural in origin. Year after year, the rural death rate is higher than that for the urban population; but it has been clearly shown that this high rural rate does not exist of necessity. There are a number of states with large rural populations and low typhoid death rates. Nevertheless, the outstanding need in the further control of the disease to-day is better rural sanitation directed chiefly toward a group of Southern states where the typhoid mortality is still not only above the Registration Area average, but above that of ten years ago. South Carolina, Kentucky, Mississippi, Tennessee and Louisiana are conspicuous examples of this.

The following table shows the death rates for typhoid fever among Metropolitan Industrial policy-holders during the twelve-year period 1911 to 1922.

Deaths and Death Rates per 100,000 for Typhoid Fever. Metropolitan Life Insurance Company. Industrial Department. 1911 to 1922.

Year	No. of Deaths	Death Rate per 100,000	Year	No. of Deaths	Death Rate per 100,000
1922	814*	5.9*	1916	1,320	13.0
1921	907	6.7	1915	1,251	12.9
1920	875	6.7	1914	1,487	16.1
1919	903	7.3	1913	1,604	18.4
1918	1,324	11.5	1912	1,571	19.1
1917	1,315	12.1	1911	1,778	22.8

*Estimated figures for 1922.

BODY WEIGHT AND LONGEVITY.

It is generally recognized that the weight of the human body in relation to its height plays a part in determining the health and longevity of the individual. It is only recently, however, that the long experience of the insurance companies has made possible the crystallization of this impression into a series of definite propositions. We know now, for example, that overweight is a serious impairment among insured lives, the gravity increasing with the excess in weight over the average for the height and age. But, even this statement has its exceptions because, at the younger ages, a limited amount of overweight is apparently an advantage. Such persons have uniformly a lower death rate from tuberculosis. It is after age 35 that overweight, even in relatively small amounts, begins to be dangerous. The seriousness increases with advancing age and with the amount of overweight.

Among short men, that is, those below five feet, seven inches in height, at the age period 40 to 44 years, an excess of 20 per cent. in weight involves an added mortality of 30 per cent. above the normal. A 40 per cent. increase in weight in such individuals involves an increased mortality of nearly 80 per cent. Among tall men, that is, those over five feet, ten inches in height, the adverse situation is even more marked. For, among them, at ages 40 to 44, a 20 per cent. excess in weight carries a 40 per cent. increase in mortality, and a 40 per cent. excess in weight, doubles the mortality.

On the other hand, underweight, which is common enough, presents a different picture. In general, underweight is an advantage, provided, of course, the proportion is not too great. It is a serious impairment in early adult life, especially among taller men. Those who are over five feet, ten inches, and who are 20 per cent. below the average weight for their height show an increased mortality of 30 per cent. Those having 30 per cent. underweight have a 50 per cent. excess mortality at these early ages. But, from age 40 onward, there are apparently no such penalties for underweight and this condition, in fact, becomes a distinct advantage; for these are the people who have the best mortality rates.

The important lesson taught by these propositions is that there is an optimum build with reference to mortality. The average build is not the best build. Those who weigh between 10 and 20 per cent. below the average show the optimum condition of longevity at the most of the ages after early adult life. These few facts which have

been derived from analysis of the insurance records* must be supplemented by intensive physiological research. A promising field of investigation is opened up for the physiologist to determine why the body mechanisms function better in those who are of lighter build than in heavier set persons. Common observation confirms these statistical findings. We can all recall from our personal observation that the large majority of our friends who have reached a ripe old age are of slight build. Large persons more often succumb at an earlier age to the diseases of the heart or kidneys, to pneumonia, and to disorders which reflect the worn-out machinery of the body. To discover the reason for this is the problem of the physiologist.

A promising lead for investigation is the suggestion that among overweights having a large chest capacity the conditions of mortality are more favorable than among those not so protected. It may well be that overweights who have large trunks are probably the best overweights and must be distinguished from those of small chest capacity and correspondingly large abdominal girth. The significance of these differences is for the future to determine.

AGE STATISTICS OF MORTALITY DURING FIRST NINE MONTHS OF 1922.

In our September BULLETIN we gave the age statistics of mortality during the first six months of 1922 and 1921. This comparison showed that the six per cent. increase in the mortality rate for the first six months of 1922 over the rates prevailing during the same period in 1921, was occasioned largely by sharp increases in the death rates after middle life. With the completion of the summer months, however, we observe a marked, favorable change in the mortality picture. Events were so favorable during the third quarter of the year, embracing the months of July, August and September, that the six per cent. excess of 1922 over 1921 recorded for the first six months was reduced to three per cent. for the first nine months. It seems that the marked inroads of the influenza outbreak on the mortality record of the early part of the year are being overcome at a rapid rate. Three months of extraordinarily favorable summer mortality reduced by one-half the excess in the rates created by the health situation of the first six months of the year. It seems reasonable to expect that the autumn record this year will accentuate the downward fall of the death rate for 1922 to such an extent that,

*Report of the Joint Committee of the *Actuarial Society of America* and the *Association of Life Insurance Medical Directors*, New York, 1918.

when the public health history of 1922 is completed, the mortality figure may be almost as good as for 1921, the best health year on record. The chief factors responsible for lower mortality during the summer of 1922 were the lessened death rates of tuberculosis, measles, whooping cough, influenza, respiratory disease as a whole, diarrhea and enteritis, chronic nephritis, puerperal diseases and conditions, and certain forms of accidents. The net effect of the improved health situation, in one of the best summers on record, on the several age ranges is shown in the following table:

Death Rates per 1,000 at Specified Age Periods Metropolitan Life Insurance Company. Industrial Department First Nine Months of 1922 and 1921.

Age Period	1922	1921	Per Cent. increase or decrease 1922 over 1921
All ages—one and over	9.10	8.83	+3.0
Under 15	3.77	4.21	—10.5
15 to 24	4.31	4.57	— 5.8
25 to 34	5.92	5.72	+ 3.5
35 to 44	9.00	8.63	+ 4.3
45 to 64	20.39	18.70	+ 9.0
65 and over	75.10	69.31	+ 8.4

PROSPECTS FOR MALARIA CONTROL IN THE SOUTH AND SOUTHWEST.

During the past ten years the malaria death rate has declined from one year to the next at an average rate of 14 per cent. for a group of 51 Southern and Southwestern cities, and of fifteen and one-half per cent. among policy-holders in the Industrial Department of the Metropolitan Life Insurance Company. In 1911, the 51 cities had a malaria death rate of 14.1 per 100,000 of population and in 1920 a rate of 3.5, which represents a total decline in ten years of 75 per cent. The immediate prospect for the future in these cities is for a further decline in the death rate. Since most of the Metropolitan's policy-holders in the South and Southwest live in cities and in small towns, a continued improvement in malaria mortality for this group is looked for also. In the following table we show a comparison of the facts for malaria mortality in Southern and Southwestern cities and for the Industrial Department of this Company.

Death Rate per 100,000 from Malaria
Experience of 51 Southern and Southwestern Cities and of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1921.

Year	Death Rate per 100,000	
	Southern Cities	M. L. I. Co. Ind'l
1921	*	1.5
1920	3.5	1.4
1919	5.3	2.0
1918	5.2	2.3
1917	6.0	2.3
1916	5.5	2.9
1915	8.7	3.5
1914	8.4	3.7
1913	10.0	4.5
1912	13.1	5.4
1911	14.1	6.1
Percentage, uniform annual decrement† of average death rate of period 1911 to 1920	14.0	15.5

*Data not available.
†Average annual fall of death rate throughout decade.

When the 1921 figures on malaria mortality by age are compared with those for the quinquennium 1911 to 1915, a fairly uniform percentage of decline is found at all age periods. For all policyholders in the Industrial Department of the Metropolitan Life Insurance Company, the malaria death rate in 1921 at all ages combined was 67 per cent. below that for the five years 1911-1915; the several age divisions show little variation from this figure. This fact is evidence that malaria eradication measures have benefited communities as a whole; it points directly to the effectiveness of mosquito extermination, screening and other comprehensive work, rather than to measures which reach only certain age-groups of the population.

The outlook for malaria control cannot be ascertained from the scanty material available in published official records. Most of the Southern States in the Registration Area have no adequate historical records from which one may gauge the long-time tendency of malaria mortality. Case reports as notified to the United States Public Health Service are not sufficiently complete to warrant their use as

indices of the extent to which control measures in recent years have suppressed malaria incidence. All doubt as to the ultimate success of Southern health workers with the problem of malaria eradication is dispelled, however, by direct observation of the work at present under way. The recent meetings of the National Malaria Committee and of the Conference of Field Workers in Malaria Control, at Chattanooga, Tenn., November 13 to 16, 1922, gave ample evidence of the determination and the ability of the South to mobilize its resources against this insidious enemy. The chief difficulty is to secure adequate funds to put into motion all through the malaria belt, those measures which have been found to be successful in demonstration areas. To this end, it is necessary for the agencies now in the field to arouse public sentiment, and to secure adequate support from appropriating bodies for a further extension of control and maintenance work. There is still much to be done in interesting whole groups of the population of the South in the malaria problem. Publicity work has just begun. Much can be accomplished by enlisting the initiative and the active support of business men's organizations, women's clubs, national organizations with publicity facilities, etc.

The Federal, state and local health officials *know* what should be done to eradicate malaria and where the most substantial results can be accomplished; they are *determined* to use every facility which the people of the South place in their hands. The issue which confronts the movement at the present time is the wider dissemination of the facts which are now known to specialists in malaria control, the marshalling of sustained public opinion, and the translation of this opinion into favorable action by state, county and municipal governing bodies.

THE DENGUE FEVER OUTBREAK IN THE SOUTH.

The wide prevalence of dengue fever in the South is emphasized by replies from a number of municipal health officers to whom the Metropolitan sent inquiries early in November asking for statements of the number of cases and deaths in Southern cities. These replies indicate that the 1922 outbreak of this disease is the most serious that has occurred in the United States since the Galveston epidemic of 1897 when 20,000 people were attacked within two months.

The worst report from the standpoint of fatal cases is that from Houston, Texas, where, within a period of a little over four months beginning in July, 575 cases were reported with 19 deaths. The

health officer of this city estimates that there were many thousands of additional cases, of a more or less mild form, which did not receive medical attention, and which, in consequence, were not reported to the Health Department. In Birmingham, Ala., there were 981 cases reported in October with two deaths. In Tampa, Fla., 1,000 cases with one death occurred in a five months period. In Macon, Ga., the health officer estimates that there have been between twenty and thirty thousand cases with four deaths. Reports received from other cities are as follows: Dothan, Ala., had 272 cases in the city and surrounding country; Montgomery, Ala., 137 cases; St. Petersburg, Fla., 2,000 to 2,500 cases; Albany, Ga., 68 cases, which the Health Officer estimates to be about twenty per cent. of the actual number; Brunswick, Ga., 608 cases; Vicksburg, Miss., 205 cases; Beaumont, Texas, 4,175 cases; Galveston, Texas, 255 cases.

Several of the health officers state very frankly that the number of cases reported gives only an inadequate picture of the prevalence of the disease. In some cities it is not reportable, and even in those where it is reportable, hundreds or thousands of cases are not given medical treatment, and do not get into the Health Department records.

While the disease is fatal in only a small fraction of the cases, it is, nevertheless, one of the most painful conditions known. This gives rise to its popular name, "breakbone fever."

Like malaria and yellow fever, dengue is transmitted to healthy persons by the bite of a mosquito. Perhaps the best means of preventive procedure is outlined by the health officer of a Florida city who writes as follows: "It has been the policy of this Health Department by agitation and education, as well as by oiling ponds and water of all kinds which would stand for several days, to endeavor to suppress the mosquito nuisance in this community as much as possible, with the result that while dengue fever has raged all over this state and Georgia, there has been a very limited spread here."

HEALTH REPORT FOR OCTOBER, 1922.

The October mortality record emphasizes the very favorable health situation which has been in evidence this year for the Industrial policy-holders of the Company. The death rate (7.9 per 1,000) is the same as that recorded for October of last year. It exceeds only slightly the figure for September (7.4) which was the lowest ever recorded for any month among Metropolitan Industrial policy-holders. A rise in the mortality during October, as compared with

September, is always expected in view of increasing numbers of deaths from pneumonia and other respiratory conditions as well as from diphtheria and tuberculosis. It is the relatively higher mortality from these diseases that was chiefly responsible for the very slight increase in the death rate this month. But even though increases over the September figure are shown for these diseases, their rates are, nevertheless, low for this season of the year. There has been no general epidemic prevalence of any of the infectious diseases and it may be noted, with reference to influenza, particularly, that so far this fall there has not been the slightest indication of any severe recurrence of the disease.

The suicide rate declined from 8.5 per 100,000 in September to 6.3 in October and a smaller decline was registered for homicides. There was also a marked decrease in the accident rate and a slight decline for automobile fatalities. The figures for the latter, however, continue to be very discouraging. We may expect lower rates for the remaining two months of the year, owing to seasonal conditions as the result of which fewer motor vehicles will be used. But, nevertheless, the October death rate (15.3 per 100,000) is higher than the figure for October, 1921 (14.2). All indications still point, as they have for several months past, to another rise in the automobile accident death rate this year.

The death rate for the general population of the large cities of the United States in October was 11.3 per 1,000. This is a full point higher than for the previous month (10.3) and slightly higher than the figure for a year ago (11.1). As expected, there was higher morbidity in October than in September for diphtheria, influenza, measles and scarlet fever. More smallpox and typhoid fever cases were also reported. When comparison is made with October of last year, increased numbers of cases are noted for influenza, measles, scarlet fever and whooping cough, with decreases for diphtheria, malaria, poliomyelitis and smallpox.

Perhaps the most gratifying item in the general health situation throughout the country is the decline in diphtheria this year as compared with last. The most pronounced decreases are reported from Indiana and Illinois. Higher diphtheria morbidity was reported, however, from North Carolina. There was one instance in which this disease reached epidemic prevalence. This was in Easton, Pa. where the schools were closed after thirty-five cases had been reported to the Board of Health.

While the smallpox situation, in general, is improved as compared with last year, there has been one important outbreak of virulent smallpox. In Denver, Colorado, 365 smallpox cases, with 102 deaths, were reported during the months of September and October, and up to November 18th this year. For the same period in 1921, there were 102 cases with only 3 deaths. The lethal rate of the Denver cases this year is one of the highest ever recorded in recent years for any American city; it shows that the mild type of smallpox prevailing in the United States for the past two decades may, at any time, in any place, suddenly shift in virulence. There was also an outbreak on the St. Regis Indian Reservation in New York State.

Typhoid fever—although reports for the year, to date, have been very favorable as compared with 1921—shows about the same October prevalence for each year. Very gratifying declines in the number of typhoid cases, however, have been reported from New York and New Jersey.

Outbreaks of dengue fever occurred in Arkansas, California, Florida, Georgia, Louisiana, Maryland, Mississippi, Texas, Alabama and South Carolina. This subject is treated in more detail in another section of the BULLETIN.

The table below shows the mortality among Industrial policyholders for October, 1922; September, 1922; October, 1921 and for the year 1921.

METROPOLITAN LIFE INSURANCE COMPANY.

Death Rates per 100,000 for Principal Causes, Premium-Paying Business in Industrial Department.

(Annual Basis)

MONTHS OF SEPTEMBER AND OCTOBER, 1922, AND OF OCTOBER, 1921.

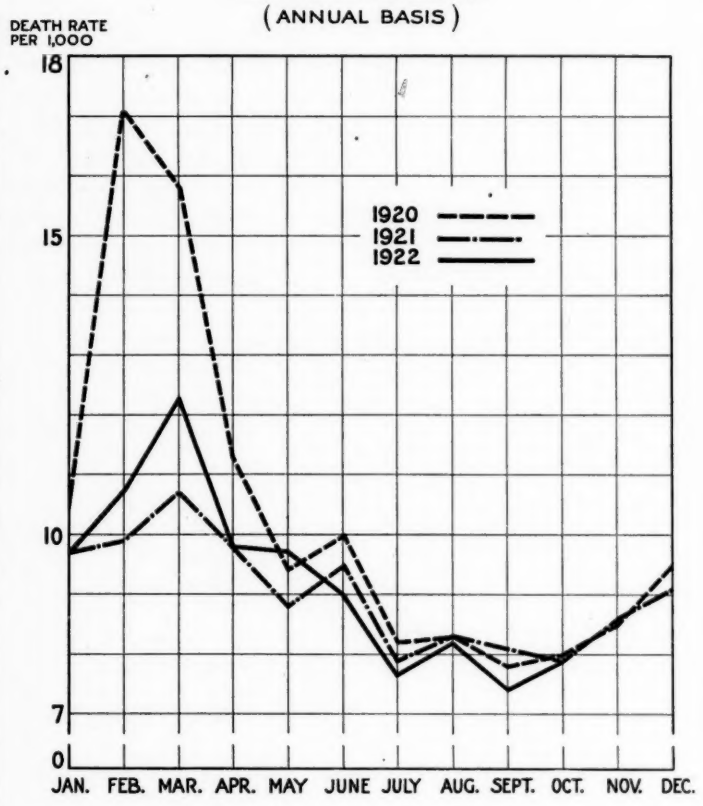
CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED			
	Oct., 1922	Sept., 1922	Oct., 1921	Year 1921
TOTAL—ALL CAUSES	786.4	743.6	790.6	870.6
Typhoid fever	9.4	9.4	8.6	6.7
Measles	1.3	.9	.3	3.2
Scarlet fever	3.9	2.6	3.4	7.0
Whooping cough	2.0	2.6	1.4	3.9
Diphtheria	19.4	10.1	28.1	23.8
Influenza	4.9	2.1	3.7	8.7
Tuberculosis (all forms)	101.4	93.0	97.8	117.4
Tuberculosis of resp'y system	91.5	85.6	89.2	105.6
Cancer	70.8	71.4	71.3	71.7
Cerebral hemorrhage	55.7	51.3	54.1	62.1
Organic diseases of heart	104.2	100.6	110.5	117.4
Pneumonia (all forms)	40.4	26.9	40.4	67.8
Other respiratory diseases	11.5	8.1	12.1	14.1
Diarrhea and enteritis	13.5	17.7	15.1	14.2
Bright's disease (chronic nephritis)	67.4	58.8	63.8	68.0
Puerperal state	16.2	14.8	14.5	19.8
Suicides	6.3	8.5	8.6	7.6
Homicides	7.4	8.0	6.8	6.7
Other external causes (excluding suicides and homicides)	54.0	62.6	51.2	57.6
Traumatism by automobile	15.3	16.5	14.2	12.2
All other causes	196.7	194.3	199.0	192.9

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
Metropolitan Life Insurance Company,
1 Madison Avenue, New York City.

DEATHRATE *per* 1,000 IN SPECIFIED MONTHS OF 1920, 1921, 1922

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	1920	1921	1922
JAN.	10.4	9.7	9.7
FEB.	17.1	9.9	10.7
MAR.	15.8	10.7	12.3
APR.	11.3	9.8	9.8
MAY	9.4	8.8	9.7
JUNE	10.0	9.5	9.0

	1920	1921	1922
JULY	8.2	7.9	7.6
AUG.	8.3	8.3	8.2
SEPT.	7.8	8.1	7.4
OCT.	8.0	7.9	7.9
NOV.	8.5	8.6	
DEC.	9.5	9.1	

77157